



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/780,437	02/17/2004	Ming-Ren Lian	C4-1121	1558
26799	7590	05/02/2006		
IP LEGAL DEPARTMENT TYCO FIRE & SECURITY SERVICES ONE TOWN CENTER ROAD BOCA RATON, FL 33486			EXAMINER MEHMOOD, JENNIFER	
			ART UNIT	PAPER NUMBER
			2612	

DATE MAILED: 05/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/780,437

Applicant(s)

LIAN ET AL.

Examiner

Jennifer A. Mehmood

Art Unit

12  
2636

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-18 is/are allowed.
- 6) ☒ Claim(s) 1-9 and 19-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Drawings***

1. The drawings were received on February 27, 2006. These drawings are acceptable.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 19 is rejected under 35 U.S.C. 102(b) as being anticipated by Herman (US 5,065,137).

Herman discloses a system comprising: a transmitter to transmit an interrogation signal operating at a first frequency (Fig. 7, item 90); a security tag having a frequency-dividing marker comprising a pair of overlapping resonant circuits (Fig. 7, item 91), with a first resonant circuit to generate a first resonant signal in response to said interrogation signal, and a second resonant circuit to receive said first resonant signal and generate a second resonant signal having a second resonant frequency in response to said first resonant signal (col 7, lns 3-21); and a detector to detect said second resonant signal from said marker and generate a detection signal in accordance with said second resonant signal (Fig. 7, items 91, 92).

4. Claims 29-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Herman (US 5,065,137).

For claim 29, Herman discloses a method comprising: receiving an interrogation signal at a first resonant circuit for a marker (Fig. 7, items 94, 96; col 7, Ins 8-10); generating a first resonant signal having a first resonant frequency in response to the interrogation signal (col 1, Ins 8-10; col 2, Ins 4-6); receiving said first resonant signal at a second resonant circuit overlapping said first resonant circuit (col 2, Ins 25-30; col 3, Ins 39-41 and 50-54); and generating a second resonant signal having a second resonant frequency in response to said first resonant signal (col 2, Ins 6-14), with said resonant frequency being different from said first resonant frequency (col 3, Ins 3-8).

For claim 30, Herman discloses said second resonant frequency is less than said first resonant frequency (col 3, Ins 3-8).

For claim 31, Herman discloses said second resonant frequency is approximately half of said first resonant frequency (col 3, Ins 3-8).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herman (US 5,065,137) and further in view of Eckstein et al. (US 6,894,614).

For claim 1, Herman discloses a marker, comprising: a first resonant circuit comprising a first coil having a pair of terminals and a capacitor connected to said pair of terminals (Fig. 1, items C1, L1; col 2, Ins 62-66), said resonant circuit to generate a first resonant signal in response to an interrogation signal (Fig. 7, item 94; col 7, Ins 8-10) and a second resonant circuit comprising a second coil having a pair of terminals and a non-linear capacitor connected to said pair of terminals (Fig. 1, items C2, L2; col 2, Ins 66-68; col 3, Ins 1, 2), with a portion of said second coil to overlap a portion of said first coil said second resonant circuit to receive said first resonant signal (col 3, Ins 40-59) and generate a second resonant signal having a second resonant frequency (col 7, Ins 3-21). Herman does not disclose planarized coils, however, Eckstein discloses this feature (col 6, Ins 2-10 and 30-34). It would have been obvious to one of ordinary skill in the art, at the time the invention was made to design planarized coils to meet specific design criteria, such as flat markers.

For claim 2, the amount of overlap corresponds to an amount of mutual coupling  $k$  between fields generated by said coils (Fig. 6; col 6, Ins 40-50).

For claim 3, the value for  $k$  comprises approximately 0.3 (col 3, Ins 50-59).

For claim 4, said non-linear capacitor comprises one of a zener diode, a varactor, and metal-oxide semiconductor capacitor (col 2, Ins 66-68; Fig. 1, D2).

For claim 5, said non-linear capacitor operates as a voltage dependent variable capacitor (col 4, Ins 14-28).

For claim 6, Herman discloses said second resonant frequency is less than said first resonant frequency (col 3, Ins 3-8).

For claim 7, Herman discloses said second resonant frequency is approximately half of said first resonant frequency (col 3, lns 3-8).

For claim 8, Herman discloses an interrogation signal (Fig. 7, item 94), but does not quantify the signal. Eckstein discloses an interrogation signal that operates at approximately 13.56 Megahertz (col 2, lns 13-16; Fig. 1, item 12; col 5, lns 3-10). It would have been obvious to operate the carrier frequency at a standard bandwidth of 13.56 MHz in order to conform to a bandwidth assigned by the International Telecommunications Union to ensure communication with a minimal amount of noise.

For claim 9, Herman discloses first and second different resonant frequencies; however, Herman does not quantify the frequencies (col 3, lns 3-8). Eckstein, on the other hand, does quantify first and second frequencies as being approximately 13.56 MHz and approximately 6.78 MHz, respectively (col 6, lns 19-22). It would have been obvious to operate the first and second frequencies at a standard bandwidth of 13.56 MHz and approximately 6.78 MHz in order to conform to bandwidths assigned by the International Telecommunications Union to ensure communication with a minimal amount of noise.

7. Claims 20-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herman (US 5,065,137) and further in view of Eckstein et al. (US 6,894,614).

For claim 20, Herman discloses the first resonant circuit comprises; a first inductor comprising a first coil having a pair of terminals; and a capacitor connected to said pair of terminals (Fig. 1, items C1, L1; col, lns 62-66). Herman does not disclose a planarized coil, however, Eckstein discloses this feature (col 6, lns 2-10 and 30-34). It

would have been obvious to one of ordinary skill in the art, at the time the invention was made to design a planarized coil to meet specific design criteria, such as flat markers.

For claim 21, Herman discloses said second resonant circuit comprises: a second inductor comprising a second coil having a pair of terminals; and a non-linear capacitor connected to said pair of terminals (col 2, Ins 66-68; col 3, Ins 1,2; Fig. 1, items L2, D2). Herman does not disclose a planarized coil, however, Eckstein discloses this feature (col 6, Ins 2-10 and 30-34). It would have been obvious to one of ordinary skill in the art, at the time the invention was made to design a planarized coil to meet specific design criteria, such as flat markers.

For claim 22, said second coil overlaps said first coil to create a mutual coupling  $k$  between fields generated by said coils (col 3, Ins 49-59). In addition, the claim is interpreted and rejected for the same reasons as stated in the rejection of claims 20 and 21, as stated above regarding the planarized coils.

For claim 23, a value for  $k$  comprises approximately 0.3 (col 3, Ins 58, 59).

For claim 24, Herman discloses numerous configurations between the circuits and the coils. Even though Herman does not disclose the second resonant circuit positioned within said first planarized coil, it would have been obvious to design a compact circuit in order to meet specific design criteria, such as small markers (col 1, Ins 66-68).

For claim 25, the value for  $k$  comprises approximately 0.3 (col 3, Ins 50-59).

Claims 26 and 27 are interpreted and rejected for the same reasons as stated in the rejection of claims 8 and 9, respectively.

For claim 28, Herman discloses a detector to detect a detection signal; however, the detector does not generate an alarm signal in response to the detection signal.

Eckstein, on the other hand, discloses an alarm system to connect to a detector, said alarm system to receive said detection signal and generate an alarm signal in response to said detection signal (col 9, lns 38-50; Fig. 7, item 114; Fig. 1, items 46, 48). It would have been obvious to include an alarm signal generated by the detector so that security personnel are alerted when a tag is within a detected area.

8. Claims 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herman (US 5,065,137) and further in view of Eckstein et al. (US 6,894,614).

The claims are interpreted and rejected for the same reasons as stated in the rejection of claims 8 and 9, respectively.

9. Claims 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herman (US 5,065,137) and further in view of Eckstein et al. (US 6,894,614).

For claim 34, Herman discloses a marker comprising: a resonant circuit comprising a coil having a pair of terminals and a non-linear capacitor connected to said pair of terminals, said resonant circuit to receive an interrogation signal and generate a resonant signal in response to said interrogation signal (Fig. 1; Fig. 7, items 90, 94; col 2, lns 62-68; col 3, lns 1-20; col 7, lns 8-10). However, Herman discloses neither a planarized coil nor a quantified interrogation signal. Eckstein, however, discloses both of these features (col 6, lns 19-23; 30-34; Fig. 3). It would have been obvious to one of ordinary skill in the art, at the time the invention was made to design planarized coils to meet specific design criteria, such as flat markers. In addition, it would have been



obvious to operate the carrier frequency at a standard bandwidth of 13.56 MHz in order to conform to a bandwidth assigned by the International Telecommunications Union to ensure communication with a minimal amount of noise.

For claim 35, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 4 as stated above.

For claim 36, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 5 as stated above.

#### ***Allowable Subject Matter***

10. Claims 10-18 allowed.

#### ***Response to Remarks***

11. Applicant's arguments (remarks) on pages 11 and 12, filed February 27, 2006, have been fully considered but they are not persuasive.

The Applicant argues as follows:

Herman does not disclose a portion of said second planarized coil to overlap a portion of said first planarized coil.

Herman does disclose a portion of said second planarized coil to overlap a portion of said first planarized coil. Figure 1 and the corresponding disclosure clearly shows coil L1 aligned and overlapping directly with coil L2 such that linear core 12 extends into the center of both coils L1 and L2.

Applicant's arguments see page 13, first paragraph, filed February 27, 2006, with respect to claim 10 have been fully considered and are persuasive. The rejection of independent claim 10 has been withdrawn.

### ***Conclusion***

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

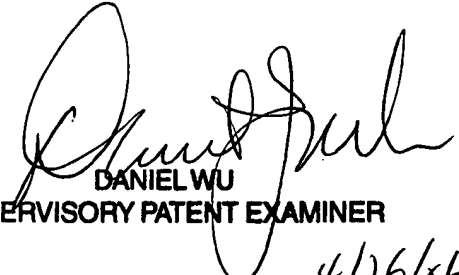
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A Mehmood whose telephone number is (571) 272.2976. The examiner can normally be reached on M-F from 8:00am to 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Daniel Wu, can be reached at (571) 272.2964. The fax phone number for the organization where this application or proceeding is assigned is (571) 273.8300.

Art Unit: 2636<sup>12</sup>

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jennifer A. Mehmood  
April 17, 2006

  
DANIEL WU  
SUPERVISORY PATENT EXAMINER  
4/26/06